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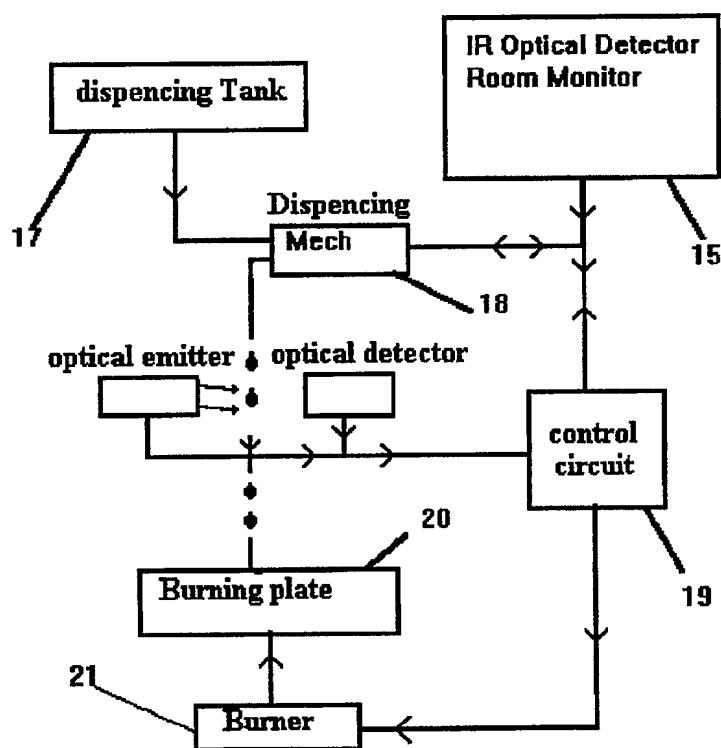
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## (54) Electronic health system

(57) An Aroma therapy or like aroma defuser where in operation is initiated by an optical detection circuit in response to atmospheric and gas pollutants.

The room environment detection system based on the self-biasing configuration in which at any time changes in the room environment occur. The optical transducer will detect the change, thus generating the slow release of aroma.

FIG 3 ELECTRONIC HEALTH SYSTEM



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The Health System has been designed to relieve stress related health problems like headaches, tension, feeling unwell in offices and places of work and sleepless. The system will provide a continuous operation by dispersing essential oil in to the air to permeate the atmosphere with herbal medication thus producing an aroma environment at home and in offices. The benefits of this approach are:- naturally conducive to creating and maintaining the health of members of staff and the individual, self contained operation, easy instalation, safety of operation of the burner. An obvious advantage of this system is its contribution to reducing the time lost due to the above illnesses. The SYSTEM will be designed ergonomically so that any location within the house or office area would be suitable.

The detection system used by OPTOLINK would provide a new concept in sampling method for the monitoring of a room environment.

The system will be designed for installation by the purchaser in the appropriate selected location without any need to dismantle the cover.

The product resulting from this project will be a unique, Environmentally Safe, Ambience Creating, Electronic Control Heat Burner, which will be of great significance to the diffusion method used in the existing markets world wide. This will allow OPTOLINK to move ahead decisively from its position of a new company in the Electronic health system market to being a world wide leader in the emerging Ambience Creation Systems market.

OPTOLINK considers to offer the detection technology to other industries such as failure of Diesel engines by use of oil mist detection and gas detection .

## 2. TECHNICAL DESCRIPTION

The project is to prove the technical feasibility of a electronic monitoring room aeromathearopy system. We would implement a room environment detection system based on the self-biasing configuration in which at any time changes in the room enviroment occur, the transducer (optoelectronic components) will detect this change, thus generating the slow release of essential oils.

The purpose is to produce an enviromentally healthy condition in the offices ,industries and homes where the lack of fresh air and conditions of buildings cause sinusitis, respiratory conditions, migraine, headaches and generally unwell feeling. The use of an essential oil product (which has a self operating circuitory system) would overcome these problems and simultaneously create a feeling of well-being.

The bases for this work would be to produce a high quality self containd electronic air freshner system due to the rise of consumer concern over enviromental issues. At present there is no intelligent system which would provide the required need of this market.

The system would use a transducer optical detection circuit to monitor the room which would then communicate an output signal to an electronic control to start the process of diffusing essential oil in to the atmosphere. The presence of some pollution would be detected by the amount of infrared radiation that the transducer would absorb at characteristic wavelengths. The detection of a particular polluted environment would be carried out by a transducer. Infrared radiation at the characteristic absorbtion wavelength of the gases (selected by narrowband filters) are passed through a reference chamber which contains the sample.

## DRAFT SPECIFICATION FOR ELECTRONIC HEALTH SYSTEM

### 1. DEFINITIONS

Electronic Health system is essentially a compact , wall mounted electronic monitoring room aeromathearopy system. It operates from a.c. Mains supply of 110/220/240 volts. The system consists of sub assemblies which are each suitable for providing different generation of products. The technology offered by the development of the electronic system leads to the evolution of a wide range of products in this field .

### 2. PRODUCT RANGE

The development of the health system will be aimed at creating a basic building block consisting of the three possible product configurations.

- a- A non-intelligent system .
- b- A semi intelligent system ,in which a near constant air concentration of essential oils is maintained using a feedback mechanism.
- c- A fully intelligent system , able to monitor environment of the industrial offices, etc and assess this in the light of its location by use of microprocessor sampling control systems.

### 3. BURNER SYSTEM

This system will use high voltage a.c. Mains to provide the required temperature for heating the chemicals. Constant temperature should be maintained throughout the operation of the burner.

The material should be able to insulate the burner system from electrical mains.

The target power required by the burner will be governed by the temperature of the oil reservoir. Control of the current through the heater will be by appropriate circuits, driven by an output from the processor.

#### BURNER SYSTEM

POWER 220/240 &110 VOLTS

DIM 50\*50 mm

MATERIAL HIGH TEMPERATURE COMPOUND

OPERATING TEMP 120'C MAX

4.DETECTION SYSTEM

This is the main input of the system and is a d.c. Level related to the environment contamination level of the room being monitored.

Detection method a-OPTICAL SYSTEM

b-MECHANICAL SYSTEM

OPTOLINK will consider using optical system as this proves to be the most efficient way.

The concentration of airborne compound may be measured using an optoelectronic transducer. Absorption patterns characteristic to harmful substances will be recognised by the system, and a measure of the concentration will be output as an electrical signal.

A detector system based on mechanical components will be considered by OPTOLINK and it is possible that a combination of the detection methods will be used.

5.CONTROL SYSTEM

For an incoming signal from the transducer the control circuit will decide which of the reference signal to use. Upon receipt of this signal the oil will be released on to the burner.

The system will use microprocessor to monitor the sampling.

THE PROCESSOR SYSTEM

This will consist of a controller for the sensor system, giving a signal output to the processor, which will be selected under software control. The processor will be a type having a built in analogue to digital convertor, into which the selected sensor signal will be fed. The attached memory will contain the system program, and also a look-up table, containing data on parameters for a number of different atmospheres.

The sensor level will be compared with the optimum level as indicated by the selected data and decision on whether to release more essential oils into the atmosphere.

#### SCANNING PROCESS

The interval between the each dispersion of essential oil to produce the required aroma shall not exceed 60 minutes.

Scanning will be in a max period of 3 minutes

#### 6. POWER SOURCES

The system may be powered from an external source of supply and may incorporate recharging facilities for any rechargeable batteries contained in the control part. The external power cable must be separated. The requirement of any national safety standard will be observed such as BS 6301.

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**CLAIMS**

1. In combination (Fig 3) with Optical control and detection of environment of a room having pollutant gases and chemicals therein, an aroma is generated to modify the atmosphere of the room only when optical detection (15) is detecting gases and chemicals; operating the burner circuit (21) to set temperature, By use of a dispensing of aroma material from its reservoir (17) to the burner unit, (20, 21) vaporisation of aroma into the atmosphere, through air duct, air conditioning etc. The air supply to the optical detector is by use of a fan operated suction process in which air would flow through the sampler chamber(9), sample air is monitored through optical chamber (9) on continuous operating medium. Communicate an output signal to an electronic control (19) to start the process of defusing aroma into the atmosphere.
2. In combination with claim (1) optical detection is characterised in that the said wavelength of UV to IR by measuring gases and chemicals in the atmosphere, the said detection comprises:
  - (A) A case (15) having detection system mounted as a self contained system with pulse generator, (12) source drive, (12) source, (4) sampling chamber, connections to the chamber, (16) orientable filters (10) and detector, (12) amplifying voltage output circuit, through a D type connector, (16) mounted on the said housing,
  - (B) A source (4) having a wavelength of infrared pulsed electronically to duration set by the operator to produce a signal whose magnitude is complying with appropriate detector, source is housed in metal can TO5 type housing with pins output to electronic pulse generator, operating on input voltage supplied by said pulse generator,
  - (C) The said pulse generator which is operated by electrical supply to produce signals of continuous operation of said wavelength and duration set by components to pulse source infrared device at a selected duration, pulse generator is an adjustable emitter coupled multivibrator to provide low control power, The said pulse width and amplitude is set by components in order to modify the frequency and duty factor of the source infrared,
  - (D) The said solid state pulse generating circuit to pulse the said source, connected to the said source,

- (E) Sample chamber (9) with each ends sealed by the said windows (7) to hermetically seal the said chamber for any unwanted turbulence and external ambient conditions to the chamber, connection (11) is to input the polluted atmosphere and release through exhaust connections (8) Propeller fan which is housed in said case will draw pollution from the said chamber,
- (F) The said source pulse generator drive connected to the said supply voltage of the main unit,
- (G) Sampling chamber is made of such materials as, metal, plastic, glass; connection (13) is supplied to external case,
- (H) Supply of liquid pollutant through the sampling chamber through, the said connection by use of pump action,
- (I) Detector unit Fig 1 mounted within a housing of said position with variable filter (10) selection to select mechanically appropriate wavelength. The said filter is a combination of filters for each with specific wavelength set within the rotating wheel to specific position in relation to detector, the said detector position within the window selection by rotation of either detector (2) or filters (10) to within said axis to which rotation takes place,
- (J) An orientable to the said filters (10) to receive the said pulsed infrared signals through the said filters to (10) the said wavelength, of the infrared,
- (K) The said signal response to the said pollution in the said chamber (9) has a wavelength set to any of the said signal is amplified and voltage output is produced to external control circuit, (19)
- (L) The said voltage output signal is logarithmic and linear in relation to absorption of gases and chemical within the said chamber, (9) the said chamber (9) detects concentration of gases and chemicals and produces voltage output to the control circuit, (19)
- (M) The said detection system (Fig 2) is self contained within a single housing, (15) comprising the said source, the said sample chamber, the said pulse generator circuit, the said detector, the said detector amplifying circuit, the said connection, the said electrical connection to external power source, the said optical detector system is self contained from burner unit (20, 21) dispensing unit, (17, 18) and control unit, (19)

- (3) In combination with claims (1) and (2) as set forth where the sampling chamber (9) is sealed by wide band windows (7) on each end to isolate the gases, chemicals, water pollutant from the said source(4) and the said detector (2), the said chamber (9) will have source path to allow the variable level of concentration of gases, chemicals, water and air pollution's to be absorbed.
- (4) In combination with claims (1), (2) and (3) as set forth the said sample chamber (9) form the central section of the optical detection unit (fig1) , the said sample chamber(1) can be removed and cleaned, the said chamber has inlet (11) and outlet (18) connectors for gas, chemical, air and water pollutants to enter, the said connectors allow the gas, chemical air and water pollution to enter on continued supply through the said chamber,
- (5) In combination with claims (1,2), the source unit (4,5,10,6) is housed in metal or plastic type fittings (5) fitted to a housing of the same material as the said chamber, (1) the said source (4) is push fit into the source housing, (5) the said source housing (5) is fitted to the said chamber (1) by screw fixing (6) to maintain the optical path, space provided within housing for a narrow band optical filter, (10)
- (6) The combination set forth in claims (1, 2) and (5) wherein the said source(4) transmit infrared energy, the said source(4) will have a solid state pulse generator to drive the said source(4),
- (7) In combination with claims (1) and (6), therein the said pulse generator(12) operates from voltage supply of 8 volt to 40 volt,
- (8) In combination with claims (6) and (7), the output of the said source pulse generating circuit (12) is a pulsed wave form,
- (9) In combination with claims (1) and (2), wherein the said detection unit housed (3) in the same material of the said sample chamber, (1) the said detector unit (3) fixed by screw to the said sample chamber, (1) the said detector unit (3) having orientable filters (10) attached within the unit for selection of the said wavelength,
- (10) In combination with claims above, the detection signal from the said optical detector system (fig2) operate the control circuit (11) to initiate the said aroma dispensing unit (17, 18) and burner unit, (20, 21)

- (ii) In combination with claims above, the detection system (Fig 2) operates using absorportion characteristics and non-dispensive measurement method
- (12) In combination with above, the said dispensing unit (17, 18) housed to hold aromamaterial with removable cap to fill the aroma materials the said dispenser unit is operative in the said housing, coupled to dispensing valve (18) by tubing to the said dispencing tank (17)
- (13) In combination with claim (12) the said dispensing tank supplies aroma material to the said dispensing mechanism by tubing method, the said dispensing mechanism delivers aroma material to the said burning plate (20)
- (14) In combination with above, the said dispensing mechanism (18) is controlled by control circuit (19) and optical drop detection method,
- (15) In combination with above, the said burning plate (20) is placed within the said housing wherein said burner plate (20) is in glass type material cylindrical shape with base to hold the aroma material,
- (16) In combination with claim is, the burning plate (20) is operated by burner unit, (21) the said burner unit is attached to the said burner plate which will be operative by the said control circuit, (19)

**Relevant Technical Fields**

- (i) UK Cl (Ed.M) A5G (GF, GV)  
 (ii) Int Cl (Ed.5) A61L 9/02, 9/03, 9/04, 9/12

Search Examiner  
J F JENKINS

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**23 MAY 1994**

**Databases (see below)**

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASES: WPI

Documents considered relevant following a search in respect of Claims :-  
1 TO 16

**Categories of documents**

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|----|---|----|---|
| X: | Document indicating lack of novelty or of inventive step.   | P: | Document published on or after the declared priority date but before the filing date of the present application.        |
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| A: | Document indicating technological background and/or state of the art.   | &: | Member of the same patent family; corresponding document.   |

Category	Identity of document and relevant passages		Relevant to claim(s)
Y	GB 2233230 A	(SHIMIZU CONSTRUCTION) see page 1 lines 13-17, Figure 7 and page 14 line 29 to page 17 lines 33	1-16
Y	EP 0325468 A2	(SHIMIZU CONSTRUCTION) see Column 1 lines 31-52	1-16
Y	EP 0295129 A1	(SHIMIZU CONSTRUCTION) see Column 1 lines 12-37 and line 54 to Column 2 line 6	1-16
Y	US 4795253	(SANDRIDGE ET AL) whole document	1-16
Y	US 4399688	(DENNIS) whole document	1-16
Y	US 4105919	(BRIDGES ET AL) whole document	1-16

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).